# Abstracts

## Directive photonic-bandgap antennas

*M. Thevenot, C. Cheype, A. Reineix and B. Jecko. "Directive photonic-bandgap antennas." 1999 Transactions on Microwave Theory and Techniques 47.11 (Nov. 1999 [T-MTT] (Mini-Special Issue on Electromagnetic Crystal Structures, Design, Synthesis, and Applications)): 2115-2122.*

This paper introduces two new photonic bandgap (PBG) material applications for antennas, in which a photonic parabolic reflector is studied. It is composed of dielectric parabolic layers associated to obtain a PBG material. The frequency gap is used to reflect and focus the electromagnetic waves. This device has been designed using a finite-difference time-domain (FDTD) code. FDTD computations have provided the theoretical reflector's directivity. These results are in good agreement with measurements, and it appears that the PBG reflector presents the same directivity as a metallic parabola. A second application uses a defect PBG material mode associated with a metallic plate to increase the directivity of a patch antenna. We explain the design of such a device and propose experimental results to validate the theoretical analysis.

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